

AMENDMENTS TO THE CLAIMS

1. (Original) A method of accelerating an object through an atmosphere comprising the steps of:

providing a towing vehicle;

connecting a tether to the towing vehicle;

attaching an object comprising an airfoil to the tether;

moving the towing vehicle at a first speed in a first direction; and

accelerating the object to a second speed substantially greater than the first speed by controlling the airfoil to fly the object at a non-zero angle to the first direction.

2. (Original) The method of claim 1, wherein said step of accelerating the object to a second speed comprises the step of accelerating the object to at least double the first speed.

3. (Original) The method of claim 1, wherein said step of accelerating the object to a second speed comprises the step of accelerating the object to an orbital velocity.

4. (Original) The method of claim 1, wherein said step of accelerating the object to a second speed comprises the step of accelerating the object to an escape velocity.

5. (Original) The method of claim 1, including the additional step of releasing the object from the towing vehicle after the object is accelerated to the second speed.

6. (Original) The method of claim 5, wherein the step of releasing the object from the towing vehicle comprises the step of disconnecting the object from the tether.

7. (Original) The method of claim 5, including the additional step of accelerating the object to a third speed greater than the second speed after said step of releasing the object from the towing vehicle.

8. (Currently amended) A system for accelerating an object comprising:

a towing vehicle moving in a first direction at a first speed;  
a tether connected to said towing vehicle;  
an object comprising at least one airfoil connected to said tether; and

a controller for accelerating said object to a speed substantially greater than said first speed by flying ~~controlling movement of said object,~~

~~wherein, said towing vehicle moves in a first direction at a first speed pulling said object in said first direction and said~~

~~controller controls movement of said object to move said object at an angle to said first direction and accelerate said object to a speed substantially greater than said first speed.~~

9. (Original) The system of claim 8, wherein said towing vehicle comprises an airplane.

10. (Original) The system of claim 8, wherein said speed substantially greater than said first speed is adequate to place said object into orbit about the earth.

11. (Original) The system of claim 8, wherein said speed substantially greater than said first speed is greater than or equal to Earth's escape velocity.

12. (Original) The system of claim 8, wherein said speed substantially greater than said first speed is at least double said first speed.

13. (Original) The system of claim 8, wherein said object includes a propulsion system.

14. (Original) The system of claim 13, wherein said propulsion system comprises a rocket.

15. (Original) The system of claim 8, wherein said object comprises a body and said airfoil is attached to said body.

16. (Original) The system of claim 15, wherein said airfoil includes at least one movable surface.

17. (Original) The system of claim 16, wherein said controller controls the position of said at least one movable surface.

18. (Original) The system of claim 8, wherein said tether is retractably connected to said towing vehicle.

19. (Original) The system of claim 8, wherein said towing vehicle includes a reel and said tether is connected to said reel.

20. (Currently amended) The system of ~~claim 18~~ claim 19, including a second controller for controlling the operation of said reel.

21. (Original) The system of claim 8, including at least one airfoil attached to said tether.

22. (Original) The system of claim 8, wherein said towing

vehicle comprises a supersonic aircraft.

23. (Currently amended) A system for accelerating an object comprising:

a suborbital towing vehicle;

a towed vehicle comprising at least one wing adapted to generate sufficient lift to support said towed vehicle in flight;

a tether adapted to connect said towing vehicle to said towed vehicle, said tether having a length of at least 50 miles; and,

a controller for controlling movement of said towed vehicle.

24. (Currently amended) A system for accelerating an object comprising:

a suborbital towing vehicle;

a tether connected to said towing vehicle and having a length of at least 50 miles and being adapted to retain a launch vehicle accelerating under at least two gravities.

25. (Currently amended) The system of claim 24, wherein said tether is ~~retractable~~—retractably connected to said towing vehicle.

26. (Currently amended) A system for accelerating an object comprising:

towing means;  
a maneuverable object comprising at least one airfoil;  
adjustable connector means for connecting said towing means  
and said maneuverable object;  
first control means for controlling movement of said  
maneuverable object; and  
second control means for controlling the length of said  
adjustable connector means;  
wherein, said towing means moves in a first direction at a  
first speed pulling said object in said first direction and said  
first control means maneuvers said object to move said object at an  
angle to said first direction and accelerate said object to a speed  
substantially greater than said first speed.

27. (Original) The system of claim 26, including disconnecting  
means for disconnecting said maneuverable object from said towing  
means.

28. (Original) The system of claim 27, wherein said  
maneuverable object includes propulsion means independent of said  
towing means.

29. (Currently amended) A system for accelerating an object  
comprising:

a first towing vehicle;

a first length of tether connected to said first towing vehicle;

at least one second towing vehicle connected to said first length of tether;

a second length of tether connected to said second towing vehicle wherein the sum of said first length and said second length is at least 50 miles;

an object comprising at least one airfoil connected to said second length of tether; and

at least one controller for controlling movement of said at least one second towing vehicle and said object.

30. (Currently amended) A method of accelerating an object through an atmosphere comprising the steps of:

providing a towing vehicle;

connecting a tether to the towing vehicle;

attaching a first object comprising an airfoil to the tether;

attaching a second object comprising an airfoil to the tether;

moving the towing vehicle at a first speed in a first direction;

flying the first object in a second direction to a first side of the towing vehicle at an angle to the first direction to accelerate the first object; and

while the first object is flying to the first side of the  
towing vehicle, flying the second object ~~in a third direction~~ away  
from the first side of the towing vehicle at an angle to the first  
direction to accelerate the second object.